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In the Claims:

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Claim 1 (amended). A method for data transmission via a radio interface in a radio communications system, which comprises the following steps:

assigning one connection via a radio interface a given number of at least two data channels, whereby the data channels can be distinguished by an individual spread code;

transmitting in the data channels data symbols and, in addition, training sequences with known symbols; and

utilizing for at least two of the data channels of the connection one common training sequence different from training sequences of other connections.

Claim 2 (amended). The method according to claim 1, which comprises using one common training sequence for all of the data channels of the connection.

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Claim 6 (amended). The method according to claim 1, wherein a ratio of a mean power per symbol between the training sequences and the data symbols is variable.

Claim 7 (amended). The method according to claim 1, which comprises evaluating the training sequences for channel

estimation at a receiving end, with a length of an estimated channel impulse response being variable.

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Claim 8 (amended). The method according to claim 1, which comprises evaluating the training sequences for channel estimation at a receiving end, with a length of the training sequences being variable.

Claim 10 (amended). The method according to claim 1, wherein the radio interface includes a TDMA component, so that a finite burst comprising the training sequences and data symbols is transmitted in a respective time slot, and which further comprises basing an assignment strategy for connections to a time slot on a number of training sequences to be estimated per time slot.

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Claim 11 (amended). A radio station for data transmission in a radio communications system via a radio interface, comprising:

a control device for assigning at least two data channels to a connection in a radio communications system;

wherein each data channel can be distinguished by an individual spread code, and

wherein data symbols and, in addition, training sequences with known symbols are transmitted in a data channel;

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a signal processor using for at least two of the data channels of the connection one common training sequence different from training sequences of other connections.